

Raymarine®



REALVISION™ 3D

HIGH SPEED Nose Cone

Installation instructions

English (en-US)
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Product overview

The RealVision™ thru-hull transducer High speed nose cone (Part number: A80702) has been designed to improve the performance of the RealVision™ 3D range of sonar transducers.

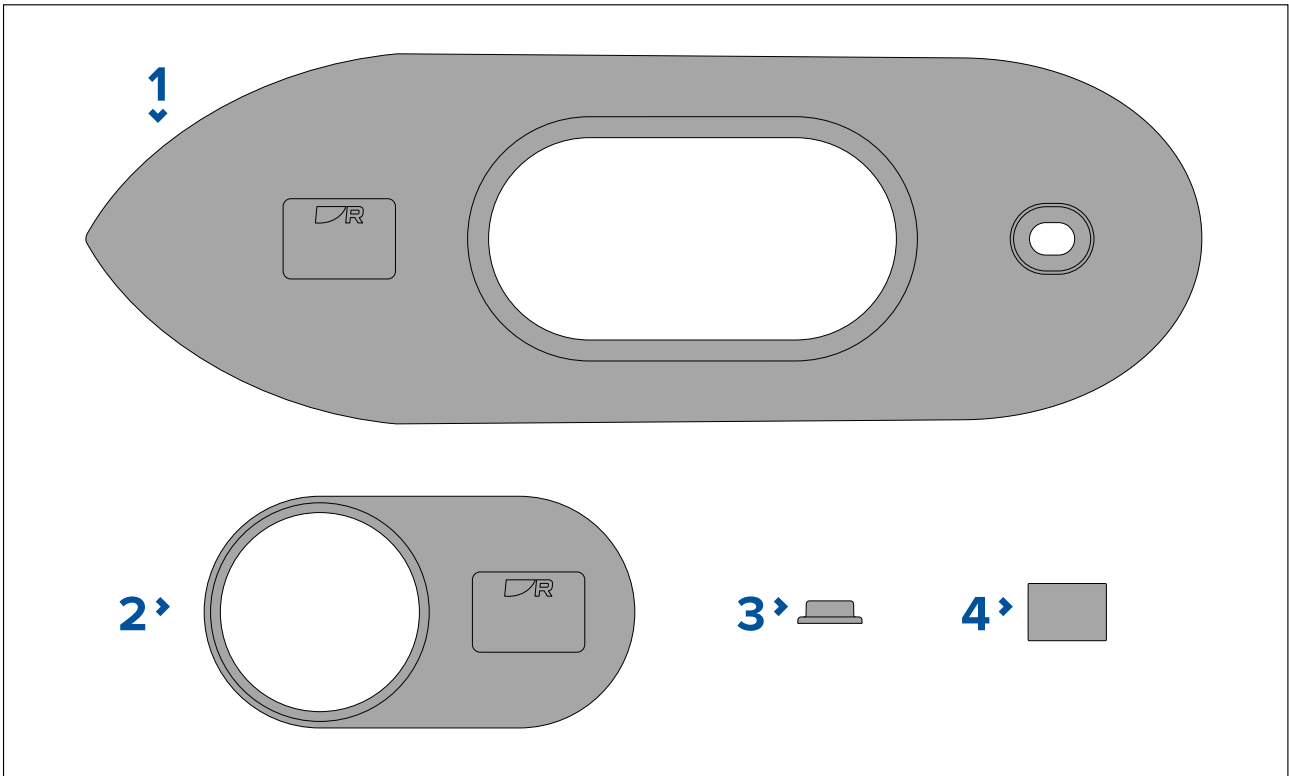
The High speed nose cone should be used as part of the initial transducer installation.

Important:

- The documentation supplied with your transducer should be read in conjunction with this document, prior to attempting installation.
- **The “Transducer mounting” procedure detailed in this document supersedes the installation procedure detailed in the documentation supplied with your transducer.**
- Retrofitting the High speed nose cone on existing RV-2xx and RV-3xx series transducer installations requires the hole for the anti-rotation bolt to be enlarged, to 16 mm ($\frac{5}{8}$ inch) .
- The parts supplied in the High speed nose cone are included as standard only with RV-4xx series transducers shipped in 2021 onwards. For all other RV thru-hull transducers, the nose cone must be purchased separately, as accessory A80702.

Parts supplied

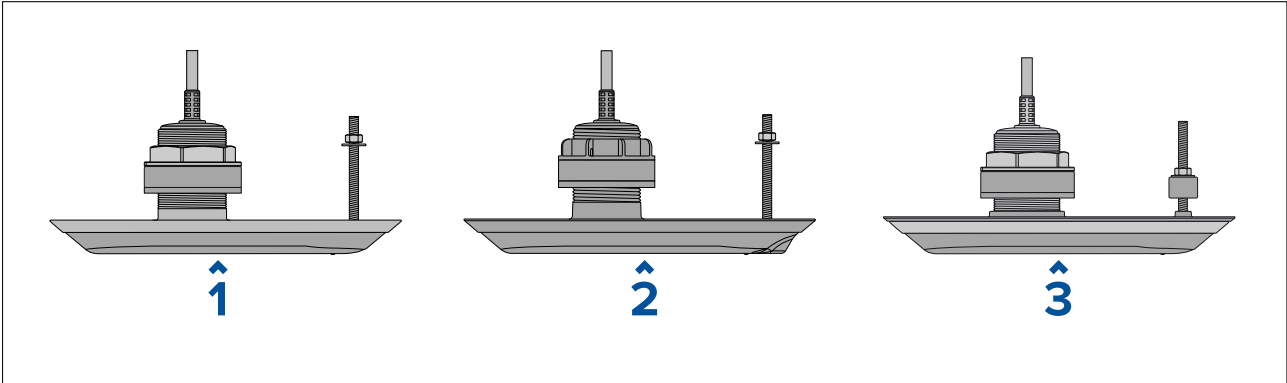
The following parts are included in the High speed nose cone kit:



1. High speed nose cone
2. External isolator plate
3. External isolator sleeve
4. Small internal isolator sleeve.

Compatible Transducers

The High speed nose cone can be used with the following transducers:



1. RV-2xx:

- **RV-200** RealVision™ 3D bronze 0° thru-hull all-in-one transducer (Part number: A80465)
- **RV-212P** and **RV-212S** RealVision™ 3D bronze 12° thru-hull split-pair transducers (System pack part number: T70318)
 - **RV-212P** port transducer (Part number: A80466)
 - **RV-212S** starboard transducer (Part number: A80467)
- **RV-220P** and **RV-220S** RealVision™ 3D bronze 20° thru-hull split-pair transducers (System pack part number: T70319)
 - **RV-220P** port transducer (Part number: A80468)
 - **RV-220S** starboard transducer (Part number: A80469)

2. RV-3xx:

- **RV-300** RealVision™ 3D plastic 0° thru-hull all-in-one transducer (Part number: A80470)
- **RV-312P** and **RV-312S** RealVision™ 3D plastic 12° thru-hull split-pair transducers (System pack part number: T70320)
 - **RV-312P** port transducer (Part number: A80471)
 - **RV-312S** starboard transducer (Part number: A80472)
- **RV-320P** and **RV-320S** RealVision™ 3D plastic 20° thru-hull split-pair transducers (System pack part number: T70321)
 - **RV-320P** port transducer (Part number: A80473)
 - **RV-320S** starboard transducer (Part number: A80474)

3. RV-4xx:

- **RV-400** RealVision™ 3D stainless steel 0° thru-hull all-in-one transducer (Part number: A80615)
- **RV-412P** and **RV-412S** RealVision™ 3D stainless steel 12° thru-hull split-pair transducers (System pack part number: T70450)
 - **RV-412P** port transducer (Part number: A80616)
 - **RV-412S** starboard transducer (Part number: A80617)
- **RV-420P** and **RV-420S** RealVision™ 3D stainless steel 20° thru-hull split-pair transducer (System pack part number: T70451)
 - **RV-420P** port transducer (Part number: A80618)
 - **RV-420S** starboard transducer (Part number: A80619)

Transducer mounting

The mounting procedure below should be read thoroughly before attempting to mount the transducer.

Important:

- The RV-4xx series transducers are recommended for vessels with metal hulls. When installing, ensure that the transducer is isolated from the metal hull using ALL of the supplied isolator parts.
- **Do NOT install stainless steel transducers on vessels with a positive ground system.**

Important:

- Only perform the installation with your vessel out of the water.
- Do NOT lift or suspend the transducer using its cable.
- Ensure that the transducer body is supported during installation.
- Do NOT remove the label attached to the transducer cable; as it helps to ensure correct connection.
- Do NOT overtighten the hull nut or anti-rotation bolt. Overtightening can cause damage to the hull which may result in water leaking into the vessel.

Drilling holes in the hull

To install a Thru-hull transducer you must drill holes in the hull of your vessel for the transducer stem and anti-rotation bolt.

1. Ensure that you are using the correct transducer (i.e.: port / starboard, 0°, 12° or 20° tilted element) for your chosen mounting location.
2. Using self-adhesive tape, attach the supplied mounting template to your chosen mounting location. Ensure that the 'Bow' arrow on the template is pointed towards the vessel's bow and that the template is flat and not creased.
3. Mark the hole centers for the transducer stem and anti-rotation bolt holes on the hull by piercing through the template and using a pencil or marker.
4. Remove the template from the hull.
5. Drill a pilot hole for the transducer stem hole.
6. Drill a 70 mm (2 ¾ inch) hole for the transducer stem, using a hole cutter.⁽¹⁾

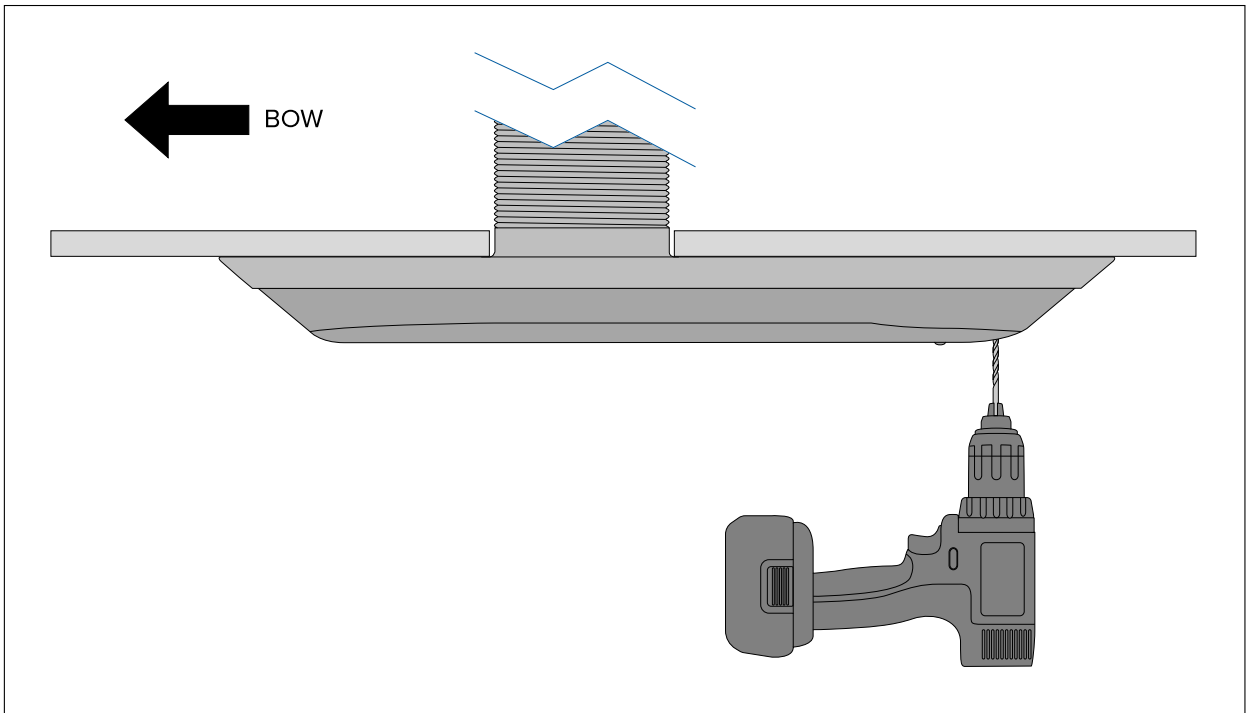
Important:

(1) If the specified size hole cutter is not available, use a slightly smaller size hole cutter and then carefully file the hole to the correct size. Alternatively you could use a jigsaw to cut the hole and then carefully file the edge to create a circle the required size.

7. Using a half round file and / or sandpaper, ensure there are no rough edges or burrs around the transducer stem hole.
8. Guide the transducer cable and then the transducer stem up through the transducer stem hole and support from beneath.
9. Ensure that the anti-rotation bolt hole is lined up with the mark you made on the hull and that the transducer is parallel to the centerline of the vessel.

10. Holding the transducer in place, carefully drill the pilot hole for the anti-rotation bolt (using the anti-rotation hole in the transducer as a guide).

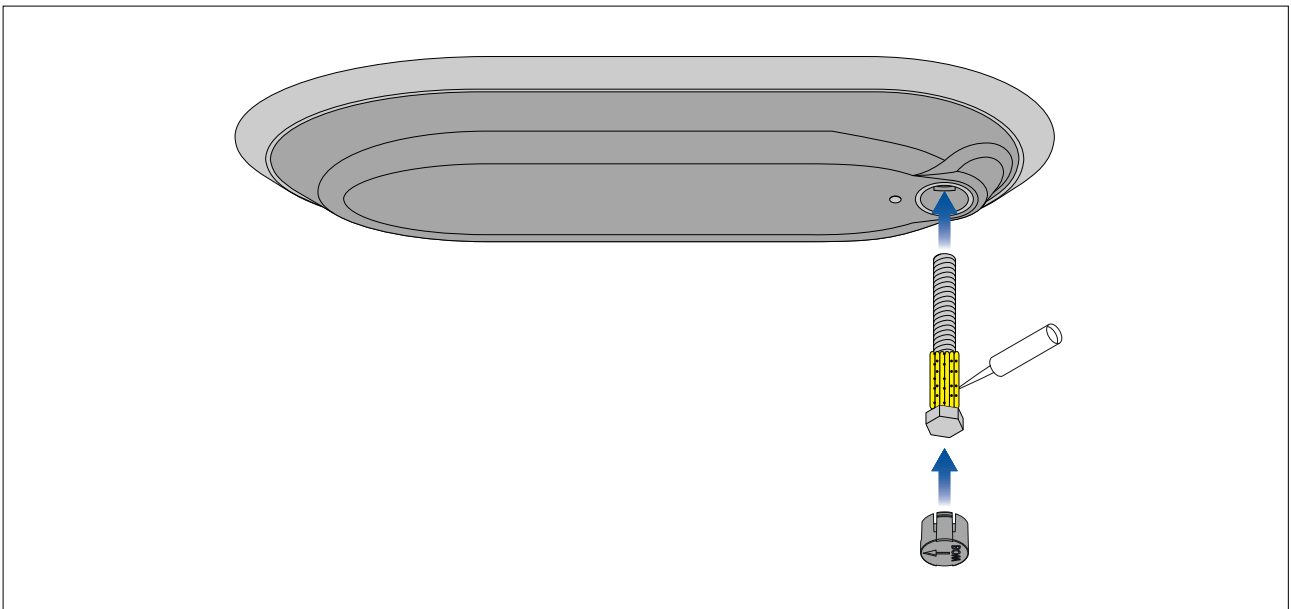
Drilling anti-rotation bolt hole



11. Remove the transducer from the hull.
12. Drill a 16 mm ($\frac{5}{8}$ inch) hole for the anti-rotation bolt.
13. Check that the anti-rotation bolt fits through the hole.

Fitting the anti-rotation bolt

The anti-rotation bolt and bolt cap should be fitted as detailed below.



1. Wipe the anti-rotation bolt with an appropriate cloth and cleaning agent (for example: isopropyl alcohol), and ensure the surfaces are dry, clean and free from debris.
2. Apply a thick bead of marine-grade sealant around the stem of the anti-rotation bolt, near the head of the bolt.
3. Guide the anti-rotation bolt through the hole in the transducer ensuring that the bolt head is properly seated.

The anti-rotation bolt hole includes a captive nut cutout to prevent the bolt from turning during tightening.

4. Apply a small amount of marine grade sealant to the inside of the anti-rotation bolt cap.
5. Fit the anti-rotation bolt cap by pressing it firmly into the hole in the transducer.

The embossed "BOW" arrow must be pointing towards the temperature sensor in the base of the transducer.

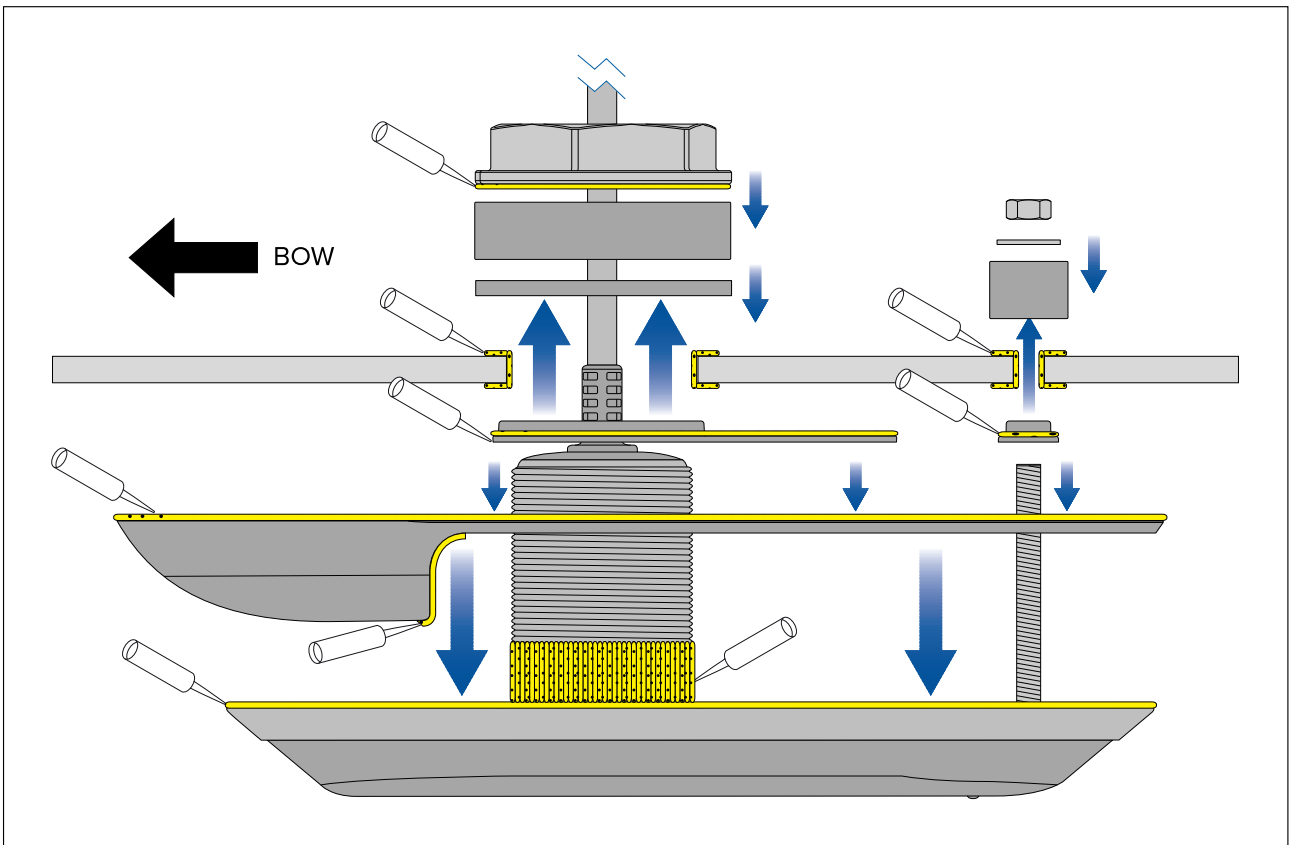
Fitting the transducer

Follow the steps below to fit the transducer to your hull.

Note:

Ensure that a generous amount of marine-grade sealant is used on all mating parts and that the parts are clean and dry before installation, to ensure a long lasting watertight seal is achieved.

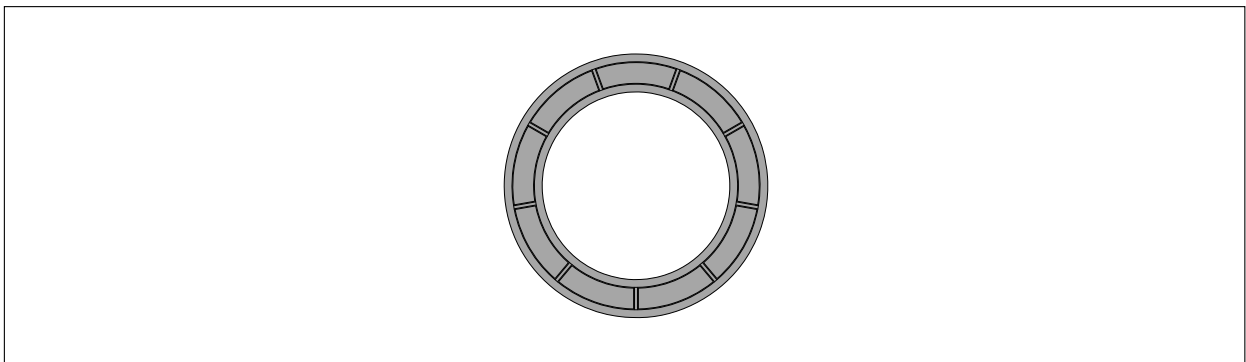
Mounting and sealant application



1. Carefully remove all labels from the top face of the transducer.
2. Remove the labels from the top face of the transducer, including any residual label glue.
3. Using an appropriate cloth and cleaning agent (for example: isopropyl alcohol), wipe clean ALL surfaces of the supplied components and the mounting location, both outside and inside the hull ensuring that they are free from grease and debris.
4. Apply a thick bead of marine-grade sealant all over the top face of the transducer so that it is completely covered.
5. Feed the transducer cable through the stem hole in the High speed nose cone, positioning the High speed nose cone over the transducer, and then slide the transducer into the nose.
6. Apply pressure to the High speed nose cone, to compress the sealant against the transducer.
7. Feed the transducer cable through the stem hole in the external isolator plate, and then position the external isolator plate in the recess in the top of the High speed nose cone.
8. Feed the external isolator sleeve over the anti-rotation bolt, positioning the external isolator sleeve in the anti-rotation hole recess in the top of the High speed nose cone.
9. Apply a thick bead of marine-grade sealant:
 - i. all over the top face of the High speed nose cone, external isolator plate, and external isolator sleeve, ensuring that they are completely covered.

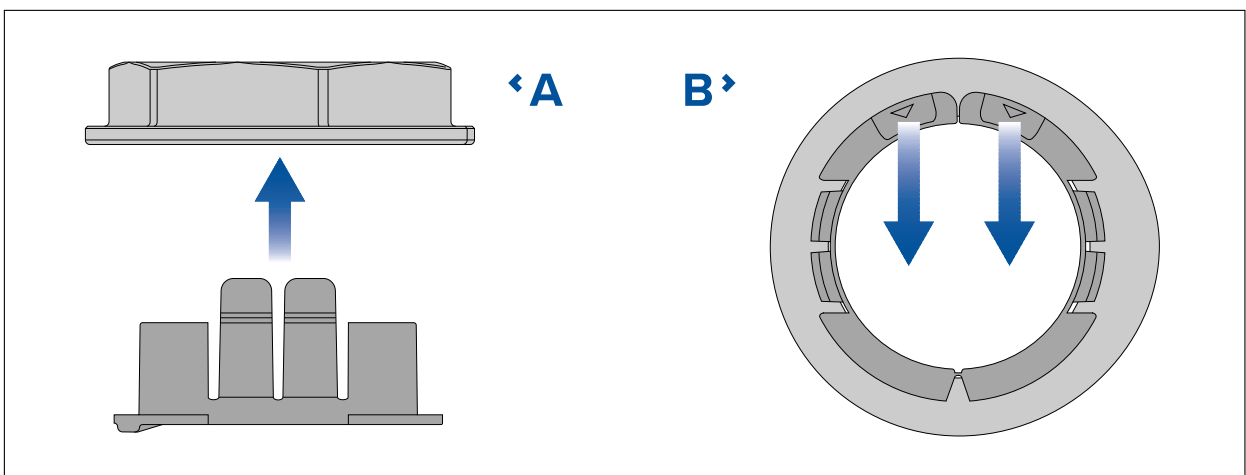
- ii. all around the bottom part of the threaded section of the transducer stem and the protruding anti-rotation bolt, ensuring that the sealant will protrude approximately 6 mm (0.24 in) above the final tightened nuts.
 - iii. all around and inside the transducer stem and anti-rotation holes on the exterior of the hull.
10. Guide the transducer cable through the stem hole in the hull.
 11. Guide the transducer stem and anti-rotation bolt up through the holes in the vessel's hull and support from beneath.
 12. From inside the vessel, apply a continuous, thick bead of marine-grade sealant all around the base of the protruding transducer stem and anti-rotation bolt threads.
 13. Guide the rubber washer down the transducer cable, and over the threaded section of the transducer stem, ensuring that the rubber washer sits flush on the hull.
 14. If necessary, apply additional marine-grade sealant to the transducer stem, above the rubber washer.
 15. With the top face pointing upwards, guide the large isolator bush down the transducer cable and over the transducer stem, ensuring it sits flush on the rubber washer.

Large isolator bush top face



16. If necessary, apply additional marine-grade sealant to the transducer stem, above the large isolator bush.
17. Ensuring the cable protector is fitted to the hull nut, guide the nut down the transducer cable, resting the nut on top of the transducer stem.

Cable protector fitting and removal

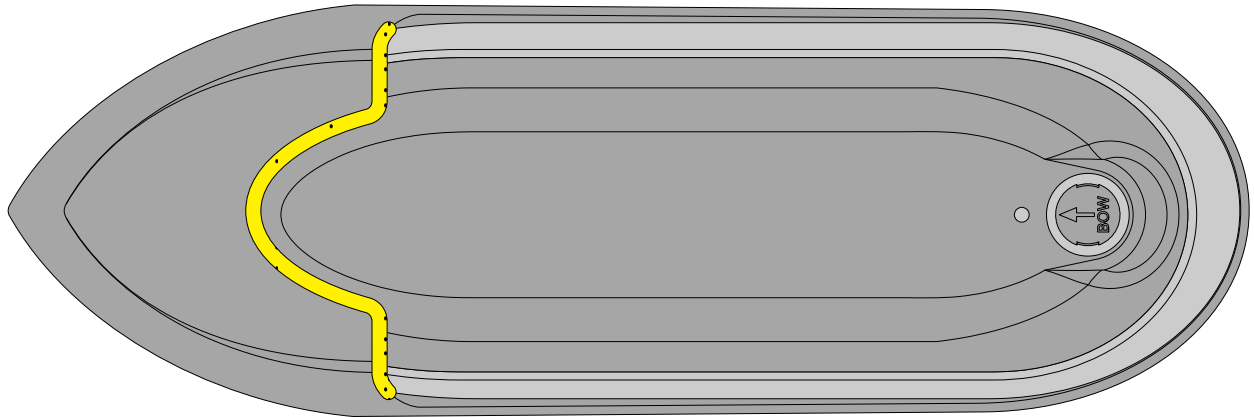


- **A** — *Fitting*
- **B** — *Removal*

18. Remove the cable protector by pulling the 2 tabs away from the back of the hull nut.
19. Apply a thick bead of marine grade sealant to the bottom face of the hull nut.
20. Screw the hull nut onto the transducer stem and fully tighten, using a suitably-sized wrench (spanner).

Ensure that the hull nut is adequately tightened. You should see the sealant protruding from the edges of all applied surfaces.

21. Place the small internal isolator sleeve over the anti-rotation bolt, ensuring it sits flush on the interior of the hull.
22. If necessary, apply additional marine-grade sealant to the anti-rotation bolt, above the small internal isolator sleeve.
23. Place the small washer over the anti-rotation bolt.
24. If necessary, apply additional marine-grade sealant to the anti-rotation bolt above the small washer.
25. Screw the anti-rotation nut onto the bolt and fully tighten, using a suitably-sized wrench (spanner).
26. Apply a thick bead of marine-grade sealant in the gap between the transducer and High speed nose cone on the bottom and both sides, as shown below.



27. Remove any excess sealant on the outside of the hull and transducer, ensuring a smooth transition between High speed nose cone and transducer, and transducer and hull.
28. Ensure that the marine-grade sealant has fully cured

Refer to the sealant manufacturer's instructions for curing times.

29. Unless local environmental regulations prohibit, apply a water-based anti-fouling paint to the bottom face of the transducer, ensuring all of the externally exposed transducer surfaces are coated and the paint overlaps onto the hull.
30. Check for leaks around the transducer immediately upon putting the vessel back in the water.

Important:

Do NOT leave your vessel in the water unchecked after installing your transducer. Very small leaks may not be immediately obvious, and a considerable volume of bilge water could accumulate over the course of a day, or overnight.

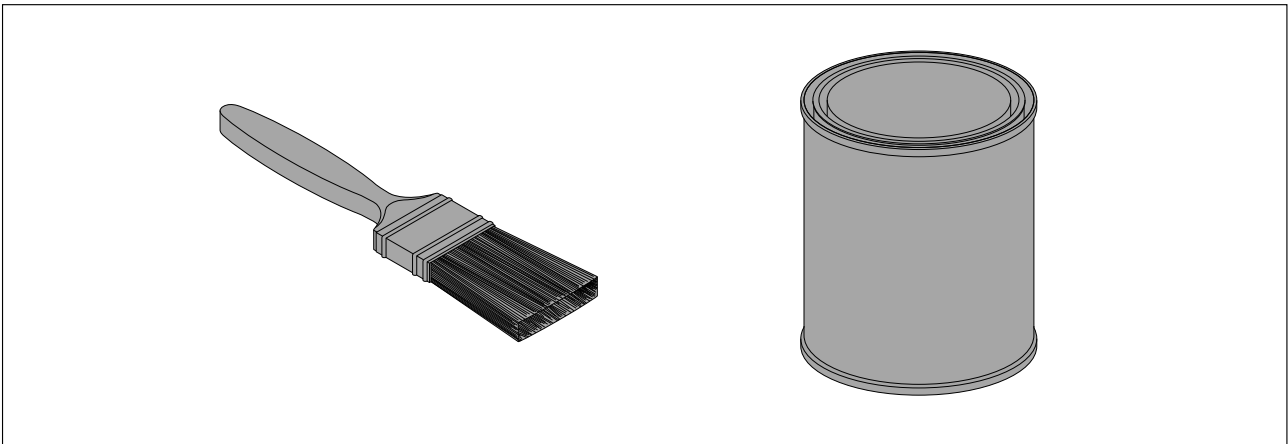
31. Check for leaks at regular intervals after installation, until you are satisfied that there are no leaks.
32. Add a regular check for leaks around the transducer to your routine vessel maintenance schedule.

Anti-fouling

Where local regulations allow, it is recommended that you coat your transducer using a water-based anti-fouling paint. This will help prevent the build-up of barnacles and other organic growth, which can cause increased drag that will degrade sonar performance.

Important:

- Before applying water-based anti-fouling paint, check that local environmental rules and regulations do not prohibit the use of anti-fouling paint.
- Never use copper-based anti-fouling paint as this can impact transducer performance.
- Never use ketone-based anti-fouling paint as this can attack the transducer's plastic, damaging the transducer.
- Paint your transducer using a brush, do not use a spray can or a sponge roller as these methods can cause tiny air bubbles to be incorporated in the paint, which will also reduce transducer performance.

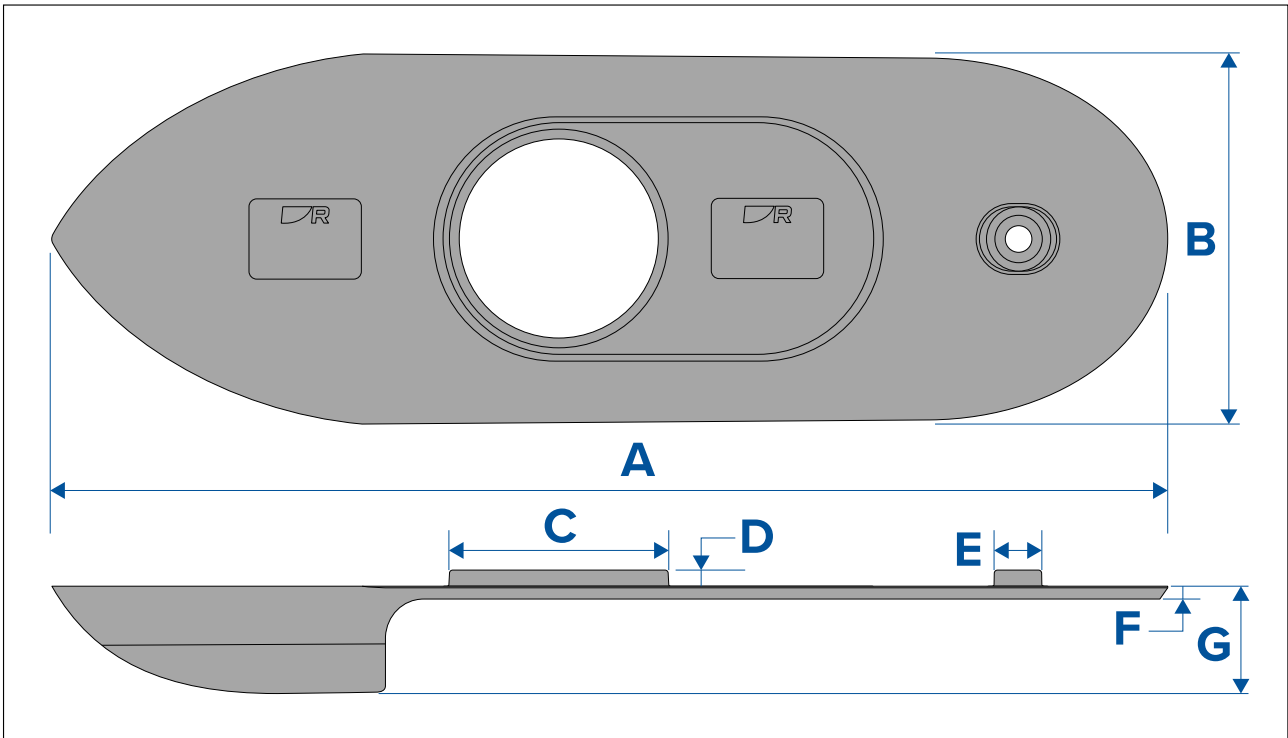


The anti-fouling paint should be applied in a thin and even coat covering all externally exposed transducer surfaces.

You should clean your transducer regularly and re-apply anti-fouling paint every 6 months, or sooner depending on how rapidly organic growth builds up.

High speed nose cone dimensions

The High speed nose cone will affect the overall size of the transducer, and therefore impact the area required for the mounting location and the size of the holes that are required in the hull.



- **A** = 347.51 mm (13.68 in)
- **B** = 114.00 mm (4.49 in)
- **C** = 68.00 mm (2.68 in)
- **D** = 2.00 mm (0.08 in)
- **E** = 14.90 mm (0.59 in)
- **F** = 4.00 mm (0.16 in)
- **G** = 33.46 mm (1.32 in)



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